Amendments to the Claims:

The following listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

21. (Canceled)

22. (Currently Amended) The method of Claim [[21]] 23 further comprising a computer readable medium having stored therein instructions for causing a processor to execute the steps of the method.

23. (Currently Amended) ~~The method of claim 21~~ A method for creating automated biological inferences comprising a computer readable medium having stored therein instructions for causing a processor to execute the steps, the steps comprising:

constructing a connection network using one or more database records from an inference database, wherein the connection network includes a plurality of nodes for chemical or biological molecules and biological processes found to co-occur one or more times, wherein the plurality of nodes are connected by a plurality of arcs in a pre-determined order, and wherein the inference database was created from chemical or biological molecule and biological process information extracted from a structured literature database;

applying Likelihood statistic analysis methods to the connection network to determine possible inferences between the chemical or biological molecules and biological processes; and

generating automatically one or more biological inferences regarding relationships between chemical or biological molecules and biological processes using results from the Likelihood statistic analysis methods;

wherein the step of applying Likelihood statistic analysis methods to the connection network includes applying a Likelihood statistic calculated by:

$L_{AB} = P(A \mid B) * P(\neg A \mid \neg B) * P(B \mid A) * P(\neg B \mid \neg A)$,

wherein A and B are two chemical or biological molecule names which co-occur in one or more database records, wherein $P(A \mid B) \equiv$ (the probability of A given B), $P(B \mid A) \equiv$ (the probability of B given A), wherein $P(\neg A \mid \neg B) \equiv$ (the probability of not A given not B) and $P(\neg B \mid \neg A) \equiv$ (the probability of not B given not A).

24. (Currently Amended) The method of Claim [[21]] 23 wherein the chemical or biological molecules and biological processes co-occur in a cell. 25. The method of Claim 21 wherein the plurality of arcs connecting the plurality of nodes in a pre-determined order includes a biological pathway.

26. (Currently Amended) The method of Claim [[21]] 23 wherein the step generating automatically one or more biological inferences includes generating a collection of a plurality of chemical or biological molecules logically associated with a plurality of biological ~~process~~ processes, or a collection of a plurality of biological processes logically associated with a chemical or biological molecule.

27. (Currently Amended) The method of Claim [[21]] 23 wherein the step of generating automatically one or more biological inferences between chemical or biological molecules and a biological process using results from the Likelihood statistic analysis methods includes generating automatically one or more biological inferences between chemical or biological molecules and a biological process in a cell using results from the Likelihood statistic analysis methods.